

student's entrance is from the corridor, and adjoining this entrance is a lavatory and cloak-room (30) for their use. The laboratory is fitted with work-tables for about twenty students. Along the west wall is a long work-table, fitted with gas and water. The space below this table is divided into cupboards and drawers for the use of students. On the north wall a draught chamber, and combined heating store and sand bath, of novel design, have been provided, and at different positions slate slabs for galvanometers, &c., have been fixed to the walls as in the private laboratory. The roof is left open to add to the height of the room, and for convenience for experimental arrangements. The room is lighted by windows in two sides, and by a row of large skylights on each side of the ridge.

A staircase, G, leads from the apparatus room to two rooms on the second floor. One of these has been constructed without iron to ensure a uniform magnetic field. No magnets or a large mass of iron will be stored below, and the room will be available for absolute electric measurements. The other room is a gallery about 37 feet long and 10 feet wide, constructed for optical and photometric work.

A second stairway leads to a small room communicating with the gallery above the lecture table, and with a flat space on the roof which has been constructed as a station for observations of atmospheric electricity. The collector of electricity will be placed outside on the flat roof, and connected with a station electrometer in the small room below.

A stair, H, at the south end of the general physical laboratory leads to some valuable rooms in the basement, which have been set apart for practical electricity, workshop (with lathe and forge), magnetic room, battery room, store room, &c.

Returning to the chemical side, the preparation and apparatus rooms (39, 40) occupy the position corresponding to that of the preparation and elasticity rooms on the physical side. The preparation room is fitted with proper work-tables, and communicates with the lecture-theatre by a sliding panel. The private laboratory (35) corresponds to the apparatus room of the physical department. It is fitted with a work-table for four persons, and a large draught chamber and sand bath, and communicates with a special balance room (34) on the west side. The general chemical laboratory (32) corresponds in position with the physical laboratory, and is fitted with work-tables for twenty-four students. These tables have been constructed according to a special design embracing all the most recent improvements. Around the north end of the laboratory have been placed sand baths, draught chamber, large distilling table, sink and table for water and air baths. A portion of the south end of the laboratory has been partitioned off and fitted up as a combustion and blow-pipe room (31). At the north end a balance room (33) has been fitted up, and in this room, as well as in the private balance room, the floor is completely isolated from the laboratories, and the tables for the balances are supported on strong brackets firmly fixed to the stone walls. The lighting of the laboratory is managed in the same way as that of the physical laboratory, the skylights along the east side of the ridge of the roof being made to open.

A staircase, J, leads from the general laboratory to the first floor of the chemical department, which is occupied with rooms specially designed and fitted for photographic, gas analysis, and spectroscopic work respectively. A ladder leads to a flat roof for experiments which require to be made in the open air. A second stair, I, leads from the general laboratory to the basement, where there is a rough operation room, joiners' shop, and metallurgical room.

The arrangement of the rooms and the construction of the lecture tables, work-tables, and other fittings have been carried out by Mr. Richard Davies, architect, Bangor, under the direction and superintendence of Profs.

A. Gray (Physics) and J. J. Dobbie (Chemistry), and in accordance with sketch plans furnished by them.

The addresses on Scientific Laboratories which Sir William Thomson delivered on the opening of the above laboratories we shall give in our next number.

NOTES

THE Geological Society has this year awarded the Wollaston Medal to Mr. George Busk for his researches on Fossil Polyzoa and on Pleistocene mammalia; the Murchison Medal to Prof. Ferdinand Roemer, the eminent palæontologist of Breslau; the Lyell Medal to Prof. H. G. Seeley, for his long-continued work on Fossil Saurians; and the Bigsby Medal to M. Renard, of the Brussels Museum, on account of his petrographical researches.

THE annual meeting of the Paris Academy of Sciences was held on February 23 before a very large audience. M. Rolland, the President for 1884, was as usual in the chair. He delivered the customary address, alluding to the members of the Academy who died during the past year, and gave a *résumé* of the principal scientific facts of the same period. M. Arago (Emmanuel), the eldest son of François Arago, who is French Ambassador to Berne, had come to Paris in order to be present at the delivery of the *éloge* on his illustrious father, who died thirty years ago. The delay must be attributed to the political career of the Perpetual Secretary of the Academy of Sciences, who, having been a member of the Government of the second French Republic, was not a *grata persona* to the then authorities. The speech was delivered by M. Jamin, who was one of his successors in the seat he occupied in the section of Physics. M. Bertrand fills his place as Perpetual Secretary. The number of prizes delivered is too great to be reported at full length. We must content ourselves by mentioning the laureates who have worked at questions of general interest. A part of the prize of 6000 francs for progress in efficiency of naval forces has been awarded to the Hydrographic Mission to Tunisia, and to a work of M. Bailla's on artillery. The Monthyon prize has been awarded to M. Riegenbach, a Swiss engineer, for his railways in mountainous districts. The Poncelet prize, for progress in mathematics, to M. Houel, for the whole of his works. The Lalande prize, for astronomy, to M. Radau, for a memoir on refractions; and the Salz prize, for the same science, to M. Gursel, for a disquisition on ancient eclipses in order to determine the value of the secular acceleration of the motion of the moon. The Tremont prize has been awarded to M. de Taste for his works on meteorology. M. Marsault has received a gratification of 1500 francs for his studies on lamps for miners. This gentleman is director of the Bessages collieries. The cholera prize was not awarded. M. Durand-Claye, an engineer of the Municipal Service of Paris, who is a strong supporter of the system called "*tout à l'égout*," took a prize of statistics for his researches on diffusion of typhoid fever.

MR. ALEXANDER AGASSIZ has resigned his position as a Fellow of Harvard College, and *Science* states that his resignation was naturally accepted by the Corporation with great reluctance. The *Bulletin* of the University just published contains the formal notes taken at the meeting of October 24, which state "that the wide range of his sympathies and interests, the confidence and affection which he inspired, and the varied information which he possessed both as a man of business and as a man of science, made his services as a fellow of singular value to the University; that his great gifts within the past thirteen years to the scientific departments, and especially to the Museum of Comparative Zoology, which amount to more than half a million of dollars, make him one of the chief benefactors of the University, and entitle him to its profound gratitude."

THE death is announced, at Cannes, of Mr. John Francis Campbell of Islay, at the age of sixty-four years. Mr. Campbell did work in various departments of science. Many years ago he collected the folk-lore of the Western Highlands, and published a large selection of his collections. Mr. Campbell was also a geologist, and in his "Circular Notes" and "Frost and Fire" will be found many geological notes as well as speculations. Quite recently, also, he published a curious book on "Thermography," and he was the inventor, our readers will remember, of the sunshine-recorder at Kew.

WE regret to learn of the death of Mr. Thomas C. Archer, Curator of the Museum of Science and Art, Edinburgh.

M. POYDESSAU, the French engineer who assisted Lieut. Bonaparte Wyse from 1876 to 1878 in his surveys of the Isthmus of Panama, in view of a canal to connect the Atlantic and Pacific, died at Panama on January 7.

Die Natur announces the death of Dr. Friedrich Ritter von Stein, Professor of Zoology in the University of Prague, who is known by a work on Infusoria; and of General Sonklar, one of the first and oldest of Austrian Alpine climbers, whose orographic work in connection with the Austrian Alps has gained him much credit in his native country. He was Professor of Geography at the Military School of Vienna; his latest work was a chart of the rainfall of the Austro-Hungarian Monarchy.

WE learn also of the death of M. Louis Godard, the aéronaut. In 1863 he and his brother Jules went up with Nadar, who still lives, in the monster balloon called *Le Géant*. A breakage in the mechanism necessitated a speedy descent, during which a gust of wind turned the car upside down. The thirteen passengers had barely time to cling to the ropes, and, the grappling irons breaking, the car dragged half a mile on the ground before a landing could be effected. During the siege of Paris Godard left by balloon, and at Tours served on an aeronautic commission. He took no part in recent experiments and discussions on navigable balloons.

ON the afternoon of January 19, we learn from *Science*, the first balloon ascent ever made in the United States solely in the interest of meteorology took place at Philadelphia. Gen. Hazen, chief Signal Officer, U.S.A., recognising the importance and value of a more complete knowledge of the upper atmosphere, entered into a contract some time ago with the well-known aéronaut, Mr. S. A. King, for a number of "trips to the clouds," an ascent to be made at any time on eight hours' notice. The U.S. Signal Service has had this subject under consideration for several years. Prof. Abbe began in 1871 to collect meteorological records made in balloons. In 1872 the records of fifty ascents had been tabulated, studied, and valuable results obtained. In 1876 1000 small balloons were sent with the *Polaris* expedition, to be used in determining the height of the clouds; but, owing to an unfortunate accident, they could not be utilised. At various times the chief Signal Officer has sent observers on balloon excursions which were made for purposes other than scientific. The considerable certainty with which the movement of a storm can now be predicted renders it possible and desirable to make systematic use of the balloon in the study of unusual atmospheric conditions, and the series of ascents just begun is planned with that end in view. Among other things it is desired to determine the difference in the temperature gradient in well-defined "high" and well-defined "low" pressures. For this purpose it is necessary to foretell the arrival of a particular atmospheric condition at Philadelphia, from which place the ascents will be made. This can readily be done so as to give the aéronaut eight hours' notice for the preparation of his balloon, and the observers who accompany him sufficient time to reach Philadelphia from Washington. The first ascent was expected to be rather experimental and suggestive in

its character. It was the intention to start at 7 a.m. on the 19th, and a telegram to that effect was sent to Mr. King, who responded that he would be ready. But, owing to the extreme cold, it was found that the balloon could not be handled for filling without danger of cracking; and waiting for the sun to warm it up caused so much delay, that the start was not made till 4.15 p.m. The balloon was the *Eagle Eyrie*, holding 25,000 cubic feet when filled, and having a lifting power of about 1000 pounds. The occupants of the car were Mr. King and Private Hammond, a skilful observer detailed from the office of the Chief Signal Officer for the purpose. Mr. Hammond carried with him a complete outfit for making barometric, thermometric, and hygrometric observations. Owing to the late hour of starting, the observations made were not so numerous as could be desired, although seven complete sets were obtained before darkness rendered further reading impossible. A safe and quiet landing was effected at about 7.30 p.m. near the village of Manahawken, on the New Jersey coast. The greatest height reached was somewhat over one mile. This trial-trip has suggested some modifications in the plans, which will render future ascents more successful. The danger incident to a balloon ascent is greatly over-estimated by many. In the company of an experienced and skilful aéronaut the risk to life and limb is hardly greater than on a railway train or a steamboat. Volunteers for this service are by no means wanting among those connected with the signal service; and Prof. Abbe is so desirous of knowing what is going on "inside of a storm," that he means to make an ascent himself in order to find out.

THE Faculty of Harvard College, by a majority of thirty to two, have decided that Freshmen may be admitted without matriculating in Greek. It is expected that the Classics will soon suffer a further comparative decline, the literature and history of the United States being given greater prominence in the curriculum.

AT a meeting of Convocation of the London University, held on Tuesday, Lord Justice Fry moved, "That, in the opinion of Convocation, the objects of the Association for promoting a Teaching University for London would, if carried into effect by this University, add to its usefulness and importance." His Lordship said that, while he did not wish to cast the slightest slur on the past history of the University, he maintained that there should be a combination of teaching with examination. In his opinion the success of the scheme was inevitable, and it would be far better that it should be carried out by the University than by another examining body. The motion having been carried, the Special Committee was authorised to give effect to the resolutions passed.

THE December number of Prof. Caporali's *Nuova Scienza*, which completes the first year of this remarkable publication, continues to advocate his peculiar system of the universe with unabated vigour and learning. His theory of psychogenesis is here advanced a further stage, and it is now contended not only that psychis is co-eternal with matter, but that it is the true starting-point of all evolution. In the present issue the chief articles are: "Modern Italian Thought," "The Pythagoric Formula of Cosmic Evolution," and "The Anglo-Saxon Anticlerical Evolution." Notwithstanding some curious misconceptions, the last mentioned paper will be read with interest by English students of contemporary thought.

AN extensive Fish Culture Establishment is in course of construction at Delaford Park, Iwer, Buckinghamshire, in connection with the National Fish Culture Association. The site is situated close to the River Colne, which is famous for its trout, and affords an abundant supply of fresh water for the purposes required. A number of ponds are being formed upon the most approved scientific principles, in which the various species of *Salmonidæ*, coarse fishes, &c., will be propagated for the benefit

of the community at large. The cultivation of the German carp will also receive considerable attention, this fish being far superior to the English species both as regards its edible qualities and capacity for rapid growth.

WITH a view to effectually prosecuting marine fish culture on sound scientific principles, the National Fish Culture Association have under consideration a scheme for carrying out a series of observations on the temperature of the sea at various stages, in order to obtain a more thorough and concise knowledge of fish, their habits, food, &c. Thermometers for this purpose are in course of manufacture, and will be distributed to those selected for observers under certain rules and regulations. The Duke of Edinburgh is greatly interested in the subject, and has promised his co-operation in furthering the movement, which he considers a most important one.

LARGE consignments of eggs of the *S. leuvenensis* and white fish have lately been received at the South Kensington Aquarium from the Hon. Prof. Baird, Commissioner of Fish and Fisheries in the United States. All the eggs are in a healthy condition and on the point of incubation. There have been about a dozen premature births amongst them, but, of course, the young fry so born will not live. Prof. Baird has intimated his intention of forwarding a further instalment to South Kensington shortly.

DR. A. WOEIKOFF writes with reference to a note in NATURE for January 29 (p. 298), in which it is stated that the Russian Government are preparing an expedition to Western Siberia to examine the sulphur deposits mentioned by MM. Kalitin and Koushin. These deposits, he states, are not in Western Siberia, but on the so-called old beds east of the Caspian, in a region which it is usual to call Central Asia. It is not exact also to mention the deposits of Tchirkat (*not* Tchirkoto) in Daghestan as the *only* ones till now known in Russia. Sulphur deposits are known in some places near the Volga, and are due to the decomposition of the gypsum so often met with in the Permian formation. Two of these have been worked, one in the eighteenth century, that of Sernaja Gora, on the right bank of the Volga, somewhat above Samara, and another quite recently, that of Sukeewa, about 20 versts above the town of Tetjuchi, government of Kasan.

BEFORE a recent meeting at Annisquam, on the coast of Massachusetts, Mr. J. S. Kingsley described the foundation and work of the Annisquam Marine Laboratory. Prof. Hyatt, of Boston, had been in the habit of inviting some of his students to accompany him to this place during the summer to study the marine forms so abundant there. From the number of applications it appeared that there was a demand for a marine laboratory on the coast near Boston which should be practically free to all. The Woman's Educational Society of Boston became interested in the project, and advanced the money necessary to fit it up. It is under the charge of the Boston Society of Natural History, and was first opened for students in June, 1881. The object of the laboratory, which appears to be open only during the summer vacations at the colleges, is to furnish students with an opportunity of studying marine animals and plants in the best possible manner. Some of those who enter are competent to conduct original investigations, and they are left to follow out any line they may choose. The majority, however, attend to get a foundation and to fit themselves for teaching. Mr. Kingsley describes the aim of the laboratory to be to teach the structure and development of animals, and the methods of study best adapted to produce teachers and investigators. Each student, unless previously qualified, dissects a series of types of the larger forms, such as sea anemones, starfish, clams, lobsters, squid, &c. After this comes a drill in the methods of investigating the embryology of marine forms. The numbers of students range between nine and twenty-one. The laboratory is under the

immediate charge of Mr. B. H. Van Vleck. A windmill has lately been added to pump salt water into the building, thus supplying a tank on each of the tables, besides three large aquaria in the centre of the room. The object was to keep the specimens studied alive in confinement—a task of no small difficulty.

AT a meeting held at Edinburgh on Monday it was resolved to hold an international exhibition in that city in the summer of 1886 of industry, science, and art. A committee was appointed to carry out the details.

THE Prince of Wales, as President of the International Inventions Exhibition, has delegated to a Commission selected from among the members of the Executive Council the duty of making arrangements for the effective carrying out of the work of the International Juries. This Commission consists of Sir Frederick Abel (Chairman), Sir P. Cunliffe-Owen, Sir George Grove, Sir E. J. Reed, M.P., Mr. John Robinson, Mr. R. E. Webster, Q.C., with Mr. Trueman Wood (Secretary of the Society of Arts), Secretary of the Commission. His Royal Highness has expressed his wish that, as was the case in the International Health Exhibition last year, the exhibitors should themselves aid in the selection of jurors by submitting the names of those gentlemen whom they may consider most eligible. Exhibitors will, therefore, be asked to send in on a form, to be provided for the purpose, names of gentlemen who might be invited to serve as jurors. The actual selection of jurors will rest with the Jury Commission, who will endeavour to give full weight to the opinions expressed by exhibitors, but will not be restricted to the list of names suggested.

THE Tenth Report of the Boulder Committee of the Royal Society of Edinburgh has come to hand. It is the final report of the Committee appointed in 1871 to collect information regarding erratic blocks or boulders in Scotland, and the Committee do not expect that, by continuing inquiries on the lines available to them, much additional information of importance would be obtained. At all events they regard it as desirable now to arrange their information obtained during the past fourteen years in such a way as to make it more readily accessible. Accordingly they append an abstract of the information in the previous nine reports, so that the present volume may be regarded as a complete record of the work of the Committee. There is also added a "summary of facts, and of inferences apparently deducible from these facts, bearing on the question by what agency boulders were transported to their present sites." The suggested agency is that "of an oceanic current from some north-westerly quarter, bringing masses of floating ice, with boulders upon them, which boulders were deposited on our hills (then submarine) when the ice stranded on these hills." With regard to the question from what country these boulders could have come, and what could have produced the current, the Committee think that though answers might be suggested, they would be going beyond the objects of their appointment in doing so. Their proper province, they say, has been "simply to collect facts bearing on boulders in Scotland, embracing their distribution, their positions, and the agencies probably concerned in their transport. To explain the source or origin of their agencies, or, in other words, to unravel the conditions of the earth's previous history, so as to account for these agencies, is a problem the solution of which must be left to others."

A FULL Report on the East Anglian earthquake of April 22 last, which was probably the most destructive event of its kind in England within the historic period, will be read at the monthly meeting of the Essex Field Club on Saturday next. The Report has been very carefully prepared for the Council by Mr. R. Meldola, with the assistance of many members of the Club and

others. A collection of photographs showing the structural damage will be exhibited. The attendance of those interested in the subjected is invited.

THE last earthquakes in Southern Spain (February 15) were incident with slight subterranean motions in Algiers and in Savoy. The valley of Isère and Chambéry principally felt them.

AN exceptionally severe shock of earthquake was felt at Geraldton in Western Australia on January 5. It was preceded by a subterranean rumbling lasting ten seconds. Houses were violently shaken, and the walls rocked, causing much consternation. The sea subsided three feet in a quarter of an hour, returning gradually to its ordinary level. The weather at the time was clear and the temperature cold.

MESSRS. SONNENSCHN AND Co. have published a third edition of Dr. Coppinger's "Cruise of the *Alert*."

WE have received from the Royal Museum of Anthropology of Leyden No. 1 of its "Anthropological Notices," by Drs. Serrurier and Jenkate. It deals with the Kroomen of Liberia, arranges the observations in them after the Broca-Topinard method. Only two individuals of the tribe, who had arrived as sailors on board a vessel at Rotterdam, were examined. They came from the region situated between Monrovia and the River Sesters. A plate containing an outline of the feet of each, and of the hand of one, is also added.

THE writer of the letter on "Human Hibernation" in NATURE of February 5 (p. 316) was Col. C. K. Bushe.

THE additions to the Zoological Society's Gardens during the past week include a Serval (*Felis serval* ♂), a Civet Cat (*Viverra civetta* ♀) from West Africa, presented by Mr. T. J. Alldridge, F.Z.S.; a Common Badger (*Meles taxus* ♀), British, presented by Mr. Cuthbert Johnson; two Common Foxes (*Canis vulpes* ♂ & ♀), British, presented by Lady Brassey, F.Z.S.; two Pileated Jays (*Cyanocorax pileatus*) from Buenos Ayres, presented by Mr. Theo. Walsh; a Roseate Cockatoo (*Cacatua roseicapilla*) from Australia, deposited; two Malayan Squirrels (*Sciurus nigrovittatus*) from Malacca, a Four-horned Antelope (*Tetracerus quadricornis* ♀) from India, a Golden-winged Woodpecker (*Colaptes auratus*) from North America, a Pine Grosbeak (*Pinicola enucleator*), European, a Brazilian Teal (*Querquedula brasiliensis* ♀) from Brazil, purchased; four Long-fronted Gerbilles (*Gerbillus longifrons*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

THE DOUBLE-STAR PIAZZI XIV. 212.—Piazzini first remarked from his own observations between 1800 and 1809, the large proper motion of this star, which was determined by Argelander in vol. vii. of the Bonn Observations to be 2".015 annually, in the direction 151°.2. "Der Begleiter 8'4m.," he adds, "theilte die Bewegung des Hauptstern; beide bilden also ein System, dass eine ziemlich rasche Aenderung der Distanz und des Positionswinkels zeigt. . . ." The following measures suffice to show the nature of the change in the relative position of the components:—

Herschel and South	1823.3	...	270°.2	...	10".82
Burnham	1881.4	...	291°.3	...	15".38

The most reliable measures may be closely represented by the formulæ—

$$D. \sin P = -12''.502 - [8.78020]. (t - 1850.0)$$

$$D. \cos P = +2''.613 + [8.96275]. (t - 1850.0)$$

But there is one point of interest connected with this star to which attention seems hardly to have been directed—viz. the strange discordances in the estimates of the magnitudes of the components. To illustrate this we may quote the following from a much larger number of estimates recorded:—

At 6h. Greenwich Mean Time

			Star A	Star B
Herschel...	1835.45	...	5½	7
"	1837.46	...	6	9
Jacob	1856.24	...	6	7½
Argelander	1862.89	...	4.9	8.4
O. Stone	1877.37	...	7.0	8.5
Flammarion	1877.51	...	5.5	6.5
O. Stone	1879.47	...	5.0	8.0
Burnham	1880.32	...	6.0	8.0
O. Stone	1880.35	...	8.0	9.5
Burnham	1881.36	...	6.5	8.0

Gould has 6.3 and 7½. The star is not in Argelander's *Uranometria*, nor has Heis got it. Argelander made a difference of 3½ magnitudes in 1862-63, Flammarion in 1877 rated the fainter star only one magnitude below the other. The difference between Burnham and O. Stone at nearly the same time in 1880 may have been due to atmospheric conditions at Cincinnati, but the star appears to be worth watching for variability; compare Argelander in 1862 with Burnham in 1881 or with Gould.

WOLF'S COMET.—The following ephemeris for 6h. G.M.T. is founded upon one for Berlin midnight, calculated from Prof. Krueger's last orbit, by Dr. Lamp, of Kiel:—

	R.A.	Decl.	Log. distance from Earth	Log. distance from Sun
	h. m. s.	° ' "		
March 2	3 7 13	... -0° 9' 7"	0.3243	0.2752
3	9 31	... -0° 2' 6"		
4	11 49	... +0° 4' 4"	0.3296	0.2776
5	14 7	... 0° 11' 3"		
6	16 24	... 0° 18' 2"	0.3348	0.2800
7	18 42	... 0° 25' 0"		
8	20 59	... 0° 31' 8"	0.3400	0.2825
9	23 16	... 0° 38' 5"		
10	25 33	... 0° 45' 3"	0.3451	0.2849
11	27 50	... 0° 52' 0"		
12	30 6	... 0° 58' 6"	0.3502	0.2873
13	32 22	... 1° 5' 1"		
14	34 38	... +1° 11' 6"	0.3553	0.2897

Mr. J. I. Plummer observed the comet for position on February 18, notwithstanding the presence of a 3½ days' moon.

ASTRONOMICAL PHENOMENA FOR THE WEEK, 1885, MARCH 1-7

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on March 1

Sun rises, 6h. 47m.; souths, 12h. 12m. 27'8s.; sets, 17h. 39m.; decl. on meridian, 7° 24' S.: Sidereal Time at Sunset, 4h. 18m.

Moon (Full at 4h.) rises, 17h. 12m.*; souths, oh. 1m.; sets, 6h. 38m.; decl. on meridian, 6° 15' N.

Planet	Rises	Souths	Sets	Decl. on Meridian
	h. m.	h. m.	h. m.	
Mercury	6 42	11 36	16 31	13° 16' S.
Venus	6 23	11 12	16 2	14° 19' S.
Mars	6 45	11 59	17 13	9° 50' S.
Jupiter	16 19	23 29	6 39*	12° 50' N.
Saturn	10 23	18 27	2 31*	21° 38' N.

* Indicates that the rising is that of the preceding, and the setting that of the following nominal day.

Occultation of Star by the Moon

March	Star	Mag.	Disap.	Reap.	Corresponding angles from vertex to right for inverted image
			h. m.	h. m.	
7	θ Libræ	4½	0 52	2 2	30 240

Phenomena of Jupiter's Satellites

March	h. m.		March	h. m.	
1	0 10	II. ecl. reap.	6	1 20	I. ecl. reap.
2	17 53	II. tr. egr.		4 5	II. tr. ing.
3	2 6	III. occ. disap.		19 19	III. tr. egr.
4	4 16	I. occ. disap.		20 0	I. tr. ing.
5	1 34	I. tr. ing.		22 20	I. tr. egr.
	3 54	I. tr. egr.	7	19 49	I. ecl. reap.
	22 42	I. occ. disap.		23 4	II. occ. disap.

The occultations of stars and phenomena of Jupiter's satellites are such as are visible at Greenwich.